

Summary of National Earthquake Prediction Evaluation Council Conference Call March 3, 2006

Participants

NEPEC Members

James Dieterich, University of California, Riverside (Chair)

Goran Ekstrom, Harvard University.

David Jackson, University of California, Los Angeles.

Barbara Romanowicz, University of California, Berkeley

Bruce Shaw, Columbia University

Jeroen Tromp, California Institute of Technology

Ray Weldon, University of Oregon

Dave Applegate, USGS

Bill Ellsworth, USGS

Rob Wesson, USGS

Mary Lou Zoback, USGS

USGS Staff

Linda Gundersen, USGS

Mike Blanpied, USGS

Joyce Costello, USGS

Welcome from Acting Associate Director for Geology Linda Gundersen

Gundersen thanked the committee members for taking on this important responsibility, noting the timeliness of restarting the committee and the need for guidance in reviewing the ability to make earthquake predictions.

USGS reasons for re-establishing the NEPEC

Applegate added his gratitude to the members and for the assistance they would be providing to the Director in carrying out the USGS statutory responsibility under the Stafford Act. Re-establishing NEPEC has been a top recommendation from the USGS Earthquake Hazards Program's external advisory committee – the Scientific Earthquake Studies Advisory Committee (SESAC) – for the past two years. It has also been a priority for USGS, recognizing the increased interest in and variety of earthquake predictions being made and the need for a clear voice to help policymakers and the public know how to respond. NEPEC is intended to be complementary to the existing California Earthquake Prediction Evaluation Council (CEPEC). For predictions in California, the two bodies would be expected to meet together and seek common judgments. There are a wide range of possible issues and aspects of earthquake prediction that the committee could tackle, and the first order of business will be to prioritize the scope of NEPEC's activities.

Scope of council activities

Rob Wesson provided a brief review of the previous incarnation of NEPEC, including initial discussions of what constituted a prediction, the experience of the Brady-Spence prediction in 1980, a series of regional meetings under second chair Lynn Sykes, the high-level politics that became involved during the review of Keilis-Borok's M8 prediction methodology in the 1980's, the Iben Browning prediction in 1990 (under third chair Tom McEveley)

Lessons learned included the challenge of complete openness during the intense media coverage of the Brady-Spence prediction, that of high-level political interest in the review of Keilis-Borok's M8 prediction algorithm, the risk of delay in the Browning case (holding a press conference only after it already had too much momentum). He noted that NEPEC was disbanded in the mid-1990s not for lack of interest in prediction science but due to the internal fiscal challenges of the Survey and political friction over the committee's work. Wesson also noted that NEPEC was the only external advisory committee for the USGS earthquake program, thus was often tasked with providing overall program guidance, a role currently held by the SESAC. (The chair of NEPEC sits on SESAC to ensure coordination between the two.)

Questions were asked about the historical connection between NEPEC and CEPEC with Wesson noting that NEPEC had the California state geologist (chair of NEPEC) on the council ex officio. CEPEC was originally formed to provide an independent judgment for the State of California and can be expected to continue with the goal of close collaboration and non-conflicting statements.

Discussion turned to the future scope of NEPEC with the tentative plan for the first meeting being to hold discussions on various avenues that could be pursued, including:

- Possible oversight role for long-term forecasts such as being done by the Working Group on California Earthquake Probabilities (which is being reviewed by CEPEC).
- Early warning.
- Quakefinder's and similar electromagnetic methodologies.
- M8 and CN algorithms of Vladimir Kossobokov & Vladimir Keilis-Borok.
- Rundle-type algorithms.
- Regional reviews as were done in the past, e.g. Cascadia.
- Predictions that come in unannounced.
- Swarm of earthquakes or other unexplained seismological event.
- Aftershock probability following major event and applications of new technology. (USGS's 24-hour aftershock maps were reviewed by CEPEC as was Reasenber/Jones aftershock-foreshock approach.)
- ShakeMap methodology, prediction of earthquake effects

- Attenuation relations for strong ground motions, given the major changes expected
- National seismic hazard maps

Given the broad range of possibilities, Dieterich expressed some concern that NEPEC not take on too broad a mandate. Specifically regarding the national maps, Wesson noted that an external review panel was being set up for that.

It was suggested that the Council should develop a set of generic statements that could be applied to some of these situations such as unusual natural events, interesting scientific approaches that have been blown out of perspective through media, and dismissals of crackpot ideas. Another generic category could be NEPEC concurrence on existing CEPEC findings.

The council also discussed the timelines under which it would operate, with Chair Jim Dieterich indicating that there would likely be situations where the Council would need to deliberate quickly in response to a specific prediction that is generating attention. CEPEC has shown the ability to get together rapidly via conference calls.

Another issue discussed was the geographic scope of the Council and whether it would pass judgment on earthquake predictions generated for areas outside the US. Jackson noted the 1976 IASPEI statement that it was unethical to make earthquake predictions in foreign countries without consultations with local scientists, suggesting that this ethical mandate should be reviewed.

First meeting dates and agenda

NEPEC members agreed to hold the first meeting on the afternoon of Thursday, May 4th and all-day Friday, May 5th, likely in the Bay Area. This first meeting is intended to look broadly across the range of possible issues to tackle and agree on ground rules for council operation.

Public announcement of council

USGS plans to put out an initial press release on the re-chartering of NEPEC in order to facilitate public discussion about the council, but the intent is not to make a big splash in the absence of the council haven't held face-to-face deliberations. A draft will be shared with NEPEC members.

Issues for "special government employees"

Committee members asked for additional guidance from the USGS Ethics Office on potential conflicts of interest, what the committee members should put down for position and title, and about how ethics training, noted in the letter of appointment, would be done.

Action Items

- Follow up with Ethics Office regarding training, filling out position and title, and conflict of interest guidance. (Blanpied/Costello)
- Discuss CEPEC/NEPEC relationship with California state geologist John Parrish and invite Parrish to speak at NEPEC's first meeting; propose future joint meetings. (Applegate/Dieterich)
- Request findings and minutes from CEPEC and distribute copies of CEPEC material to NEPEC members. (Blanpied)
- Invite NASA to give a presentation on that agency's support of earthquake prediction research. (Applegate/Blanpied)
- Invite Tom Jordan to give a presentation on the Collaboratory for the Study of Earthquake Predictability. (Applegate/Blanpied)
- Invite Lucy Jones to give a presentation on the USGS's California 24-hour aftershock forecast map. (Applegate/Blanpied)
- USGS to provide NEPEC members with an appropriate selection of prediction literature. Members are encouraged to provide suggestions to Mike Blanpied (mblanpied@usgs.gov). (Blanpied/All)
- Wesson will report back on review process for national seismic hazard maps. (Wesson)
- Request legal briefing from DOI Solicitor's Office on liability issues for council members. (Blanpied)
- USGS will develop a press release on the re-chartering of NEPEC and release it in the coming weeks; plan to share draft with council members. (Applegate/Blanpied)